Menlo Park Notebook #121 [N-80-10-15.1]

This notebook covers the period October 1880-February 1881. Most of the entries are by Francis Jehl. There are also a few entries by Francis Upton. All the entries relate to tests of lamps sent from the lamp factory to the laboratory. There is also a copy of a memorandum by Charles Batchelor regarding these lamps. The label on the front cover is marked "Lamps Lot 1," "16 C," and "Francis Jehl." The book contains 284 numbered pages.

Blank pages not filmed: 44-45, 112-115, 126-143, 168-279.

E.m.f on Buch' [illegible] 1400

230
2

3) 460
140

LIBRARY OF THE

BOARD OF PATENT CONTROL,

120 BROADWAY, NEW YORK.

From Library
~~GENERAL ELECTRIC.~~
44 Broad St N.Y.

May 1, 1896

Emf

C

R

No 1

195 – 194

16

37650 + 300

200
Busted on oct 22
at ten P.M.

195
194
3) 389
129

1295
189 R
36 ohm

37650
300
20) 37950 (189
378
168
195

there Lamp was put
on at 10.20 oct 15/80

No 2

Eu 7 | 213 – 214

R | $\frac{37650 + 3100}{200}$

C | 16

213
214
3)427
142

37650
3100
20)40750
203

1420
203 R
17 ohm

3

Ell7 222 - 221

R $\frac{37650 + 9200}{200}$

C 16

1470
234 R
~~[illegible]~~

$$\begin{array}{r} 222 \\ 221 \\ \hline 3)\,443 \\ 147 \end{array} \qquad \begin{array}{r} 37650 \\ 9200 \\ \hline 20)\,46850 \\ 234 \end{array}$$

went up about 9 oclock
oct 16 1880

No 4

Emf 189 – 186

$$\frac{37650 + 300}{200}$$

R

125 ω
189 R
44 ohms

C 16

189
186
3)375
125

37650
300
20)37950 (189
20
179
160
195
180

bust Oct 20 1880
at ten oclock

5

Emf 203 - 203

R $\frac{37650 + 3000}{200}$

C 16

1350
203 ohms
28 ohm

$$\begin{array}{r} 203 \\ 203 \\ \hline 3|406 \\ \hline 135 \end{array} \qquad \begin{array}{r} 37650 \\ 3000 \\ \hline 20|40650 \\ \hline 203 \end{array}$$

([illegible] on [illegible])
of Nov 1880

No 6

R $\frac{37650 + 8900}{200}$

Emf 222 - 222

~~16~~ 148 V
232 R
17 ohm

C 16

222×2
$3\overline{)444}$
148

37650
8900
$20\overline{)4655.0}$
232

No 7

Em7 189–189

R $\frac{37650 + 2700}{200}$

C 16

1265
201 ohms
44 ohms

$$\begin{array}{r} 189 \\ 2 \\ \hline 3\overline{)378} \\ 126 \end{array} \qquad \begin{array}{r} 37650 \\ 27 \\ \hline 20\overline{)40350} \\ 201 \end{array}$$

No 8

EM7 198 — 198

R $\underline{37650 + 3000}$
~~7~~ 200

C 16

132 U
203 Res
33 R

198
2
3) 396
132

37650
3000
200) 40650
203

No 9

EmF 198 — 198

R $\frac{37650 \times 1200}{200}$

C. 16

132 ~
194 R
24 R

19.8
2
3)396
132

37650
12
20)38850
194

No. 10

EMF	230 - 232	
R	to light	
C	16	154ω — R to light

230
232
3)462
154

went off about 9 o'clock
oct 11 1880

No 11

Em.7 198—198

R 37650 + 1200

200   1325

194R

C 16   24R

198   37650

2   12

3)396 20)388000

132   194

Busted at 2 oclock

oct 18 / 1880

No. 12

Em7 202 – 202

R $\frac{3700 + 37650}{200}$

C 16

1340
206 R
30

202
2
3)404
1342

37650
3700
13420)41350
206

Buried at about
8 o'clock Sept
Oct 20 1880

No 13

Em7 2.05 — 205

R $\frac{37650 + 6100}{200}$

C 16

1365 —
218 R —
28

205
2
~~100~~
3/410
13620

37650
61
43750
218

No 14

Aut. 180 − 180

R $\frac{31400 + 3600}{200}$

C 16

1205
175 R
49 R

$\frac{180}{2)360}$

31400
36

1202) 350 ~~00~~
175

Busted at 8.45
Sat Oct 6 1880

EMF 220 — 220

R $\frac{37650 \times 4500}{200}$

C 16

146 U
210 R
11

220
$3\overline{)440}$
146

37650
465
$20\overline{)4215}$
210

went up at 7.45
oct 16 1880

No 16

Elet 215 — 213

R $\frac{37650 + 8800}{200}$

142 U

C 16

232 R

19 o/o

$$\begin{array}{rr} 215 & 37650 \\ 213 & 88 \\ \hline 3\,)\,428\,20 & 46450 \\ \hline 142 & 232 \end{array}$$

No 17

EMF 213 - 213

R 37650 + 4200

200

C 16

142 V
209 R
17 R

213
2
3) 426
142

37650
42
20) 41850
209

~~Broke~~ ~~Bustled~~ [illegible]

Busted ~~of~~ about five oclock Oct 15 1880
J

No 18

EMF	189 – 189	
Ro	37400	
C	200 16	126 v 187 R 33 ohm

189
2
3)378
126

~~200~~)37~~400~~
187

~~15~~

Busted at half past one Oct 20 1880

a^x 1 Oct 15

Ext 208 − 208

R $\frac{37650 + 5500}{20}$ 138 215R

C 16 25R

$\frac{208 \times 2}{3)416} = 138$

37650
5500
10)43150
215

138 : 156 215
154
860
1075
215
138) 33110 ($\boxed{240}$
276
551
542

240
215
25

Went up at 7:37 9 0 oct 16/1880

Ar No 2

E147 ~~2010~~ 210 – 210

R $\frac{37650 + 7500}{200}$ 220 ohms

C 16

37650
7500
20 | 45150
225

210
2
3 | 420
140 : 154
225
770

3765~~0~~
75
50

247
225
22

3
30 0 8
30 8
14) 3465~~0~~ (247
28
66
56

went up ~~7~~ 98 about 1.5
oct 16 1887

aix no 3

Eut 242-243

R 37650 + 35[illegible]
2[illegible]

C 16

247
243
3 (487
16

Lot no 2 Oct 18 – 1880

EMF 218 – 2.18

R $\frac{37650+1200}{200}$

C 16

EMT 228 – 227

R $\frac{31400 + 4400}{200}$

48

C Blue at the Camp

EMT 212 – 212

R $\frac{31400 + 6000}{200}$

C 16

~~4~~ 3

Emf 240 — 240

Ro 37650 × 4500

C 200

16

Blue at Lamp

54

EMF 220-222

R $\frac{31400}{200}$

C 48 Blue oil Clamp

EMF 190 - 190

R $\frac{31400 + 1000}{200}$

C. 16 Blue oil Clamp

EM7
R
©

5

very high resistance

Em+

6

238 – 240
to high resistance

7

Emt 208 - 208

R $$\frac{37650 + [illegible]500}{2000}$$

C 16 Blue at the Clamp

8.

Ell7 Hg in the globe
and Blue at the Clamp
194—198

R $\frac{31400 + 45000}{2000}$

C 16

9

Emf 208 - 210

R $\frac{37650 + 200}{200}$

C 16

Hg in the globe
Blue at the Clamps

10

Emt 215 ~ 217

R $\frac{37650 + .2000}{2000}$

© 16

Blue at the Clamps

11

Em7	212 – 215
R	$\frac{37650+1800}{2000}$
C	16

Blue at the Ramp

12

Emf 210 - 207

R $\frac{37650 + 2000}{2000}$

C 16

Blue at the Clamps

1-3

Ent 207 – 207

R $\frac{37650+500}{200}$

C 16

Blue at the Clamp

14

Ein 7 222 - 222

R $\frac{37{,}650 + 5700}{2000}$

C 16

Blue at the Clamp

15

Elm4 211 — 212

R $$\frac{37650+.4000}{2000}$$

C 16

Hg in the glass and
Blue at the Damp

16

Cut 198—198

R $\frac{31400 + 21\cdot00}{200}$

C 16

Blue at Clamps

17

Emu7	226-228
R	$\frac{37650+1500}{200}$
C	16

Blue at the Damp

~~198~~ 18

Em7 200 - 200

R $\frac{37650 + 20000}{200}$

C 16

Blue at the Clamp

19

Ent Hg in this globe
206-207

R $$\frac{31400 + .5200}{200}$$

C 16

Blue at the Clamp

20

Eu7 200 - 200

R 31400 5200

2000

C 16

Blue at the Clamp

21

Emf 202 – 202

R $\frac{31400 + 4500}{2000}$

C .16

Blue on the Clamps

2 2

Res $\frac{31400 + 300}{200}$ *

Emf 178 – 180

C 16

23

Out 242 – 242

R To highresistance

C 16

24

Emf 179 – 179 *

R $\frac{31400+3000}{2000}$

C 16

25

Emt 218 – 218 *

R $\frac{37650 + 8500}{2000}$

C 16

Emf 198 – 198

R $\frac{37650 + 2500}{\text{[illegible]}}$

C 16

27

Out 192 — 192

l $$\frac{37650 + 3500}{200}$$

C 16

28

Cut 221-221

R 34650+ 9000

2000

C 16

29

Cut 205-206

R $\frac{37650 + 6200}{200}$

C 16

30

EMT 203-203

R $\frac{.37650 + 5000}{200}$

C 16

Oct 21

Lamps. Marked light vacuum
was put on at 9.1 0.clock

Oct 23

Received from lamp factory
19 new bulbs, new made
and iron clamps.
Same carbons as lot 2
2 ditto but nickle
clamps. 2 old style,
nickel clamps 1 Sent
up before

Signed
Bachelor

Nov 3 1880.

147
2
294

150
2
3)300
100 √
100
10000
44.3
300000
400000
400000
130)4430000(3407,
39
53
52
100
91

3407)33000(

8.~~8~~3 oclock at 63.C

189 = 189

busted at 8.37 ~~at~~

was at 8.81

18870
5000
23870

80
68
12

200) 23870 (119
200
387
200
1870
1800
70

12) 68 (5.6
60
80
72

5.6
5.6
336
280
31.36
2
62.72

3
3

119
8
952

7

159
2
3) 378
126
4

119
6
714
714

5
5
5

119) 703310
59544
10863
9522
11410
10711
300

(5892

5892) 33000 (5
29460
55 4

69.5
10.5

146 Volts

69.5
6.95
25

18870
5500
24370
121.85

1,8420
2
3,6840
2.0424
1,6424

0212
2
0424

44
.2
88 candles

7922 ft lbs.

)33000

45185
35955
.6197
4.2
88 1.9445
1.3842

367 per HP.

12580 188
3300
204) 15884
79 188

115
2
3) 230
76 0
76
456
532
5776 322 sft
44,3
17328
23104
23104
79) 2548768 (3225
2374
1788
1558
207
158
4964
4745

Dof 221 — 220

314
31
314
942
.4

1760
3) 52800
.3
123.20

Nov. 8 1880

Σ 133 - 133

$$3\overline{)266}\;133\;2'$$

88

$$\frac{12580 + 1900}{2000}$$

C16

12580
1900

$$20\overline{)14480}\;(9$$

$$20\overline{)14480}\;(72 \text{ ohms}$$

140
48

This Lamp was coated at the clamps with carbon by being immersed in Kerosene.

$$72\overline{)343060}\;(4764$$

288
550
504
466
432
340
288

$$4.764\overline{)33000}\;(7$$

33348

5

18870
300
2(00) 19170 (9
~~1800~~
110

18870
400
2(00) 19270 (96.6
1800
1270
120

15 12580
4800
2) 17380
86.9

2(5950
29.7

6290
5100
2(11390
56.9

2(3980
19.9

6290
3400
2(9690
48.4

6290
1490
2(7780
38.9

12580
2800
2(15380
76.9

12580
900
2(13480
67.4

96
87.
77.
67.4
56.9.
48.4
38.9
29.9
19.9

129 6
176

33

4.2210794
1.6464037
7.7544873

3.6219704 ftlbs
6.3780296
4.5185139

0.8965435

7.9 HP.

113.
143

4.1061568
1.6464037
7.8446630

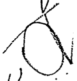
3.5972235

6.4027765
4.5185739

0.9213504

8.3 HPP,

Lun 16



111 U
138 R

4.0906460
1.6464037
7.8601209

3.5971706 pt Clo

6.4028204
4.5185139

0.9213343

8.3 HP,

Feb 8

Order 48 R 300
104 1/2 V. 4(B)

120.15 V

18840
4500 R

200 / 23340 / 116
200
[illegible]
134
1340
1200
140

116 ohms

130
116
780
130
130

120 / 15080 / 125
120
308
240
680
600
80

126
117
19 Ohms inserted.

Order 48 R 285
100 ½ V 6

.120.15 V

18840 R
3800 R

200/22640/113
200
264
200
640
600
40

48 C

136
113
390

123
113
10 Ohms inserted.

130
130
120/14690/122
120
269
240
290
240
50

103½ V or
7(A) 48 R 280

122.85 V

18840
3900 R

22740

48 ℓ
200/22740/113
200
274
200
740
600
140

121
114
7 Ohms inserted.

130
114
520
130
130
123/14820/120
123
252
246
60

3.6521496
1.6464037
8.0969090
3.3954623

6.6045377
4.5185139
1.1230516 13.3 H.P.
at 16 @

3.5847834
1.6464037
8.0861861
3.3173732
6.6826268
4.5185139
1.2011407

15.82 H.P.

16.2.

3.5777502
1.6464037
8.0846002

3.3087541
6.6912459
4.5185139

1.2097598

16.20 HP.

9.9 1/2 V
14
order 48
R 275

116.775

1840
3300 R

200/ 2 2 1 4 0/110
2 0 0
2 1 0 4
2 0 4

48 C

140
123
111
12 Ohms inserted.

130
111
130
130
130
117/14430/123
117
273
234
390
351
39

Feb 8 order 144 R 285

111½ 1 ✓

121.50 ✓

18840 R
5000

200)23840/119
200
384
200
48 C

119 1840
130 1800
3570 40
119

127
119
8 Ohms inserted.

122)15470/126
122
327
244
830
732
98

Order 144 R 330

6 114½ ✓

130 ✓

18840 R 48 C
7500
200)26340/131
634
600
340
200
140

130
132
260
390
130
130)17160/132
130
416
390
260
260

Feb. 8, 1881.
Order 144 - R 290
29

121.50 V

18840
4300 R
23140

48 C

200/23140/115
200
314
200
1140
1000
140

124
116
8 Ohms inserted.

130
116
280
130
130

122/15080/123
122
288
244
440
366
74

Feb. 8, 1881.
Order 144 - R 270
99 1/2 V - 26

114.75 V

18840
4000 R

200/22840/114
200
284
200
48 C
840
800
40

128
114
14 Ohms inserted

130
114
520
130
130

115/14820/128
115
332
230
920
920

Feb. 8, 1881.
Order 144-R295
111½ V-9

124.83 V

18840 R
5900 R
24740

48 C

200/24740/123
200
474
400
740
600
140

130
124
520
260
130

125/16120/128
125
362
250
1120
1000
120

129
124
5 Ohms inserted

Feb. 8, 1881.
Order 144-R250
28

118.12 V

18840 R
4300 R

200/23140/115
200
314

48 C

200
1140
1000
140

130
116
780
130
130

118/15080/127
118
328
236
920
826
94

128
116
12 Ohms inserted

Feb. 8, 1881.
Order 144-R230
4

118.12 √

18840 R
2700 R

200/21540/107
200

48 Ω

1540
1400
140

108
130
3240
108

118/14040/118
118
224
118
1660
944
116

119
108
11 Ohms inserted.

Feb. 8, 1881.
Order 144-R290
111 V-18

124.83 √

18840 R
6200 R

200/25040/125
200
504
400

48 Ω

130
125
650
260
130

125/16250/130
125
375
375
0

1040
1000
40

130
125
5 Ohms inserted.

Feb. 8, 1881.
Order 144 – R 310
6

120 ✓

18840 R
5200 R
24040

48 C

200/24040/120
200
404
400
40

130
120
2600

130
130/1,5600/120
130
260
260
0

Feb. 8, 1881
Order 144 – R 260
22

116.12 ✓

18840 R
4500 R
200/23340/116
200
334
208
46 C

1340
1200
140

130
117
910
130.

129
117
12 Ohms inserted.

130
118/15210/128
118
341
236
1050
944
106

Feb 8

112 ½ V 11

or 144 R 240

122.83 V

18840
3300 R

22140

48
200/22140/110 R
200
214
200
140

117
111
6 Ohms inserted.

130
111
130
130
130
123/14430/117
123
213
123
900
861
39

or 144 R 270.

103½ V 27

118,12 V

18840
3800 R

22640

48
200/22640/113
200
264
200
640
600
40

125
113
12 Ohms inserted.

130
113
390
130
130
118/14690/124
118
289
236
530
472
58

Feb. 8, 1881.
Order 144
3

116/12 V

18840
5000 R

23840

48 C

200/23840/119
200
384
200
1840
1800
40

131
119
12 Ohms inserted.

130
119
1170
130
130
118/15470/131
118
367
354
130
118
12

Feb. 8, 1881.
144-R340
116V-15

130 V

25127
3700 R

28827

48 C

200/28827/144
200
882
800
827
800
27

130
144
520
520
130
130/18720/144
130
572
520
520
520

Feb. 8, 1881.
Order 144 - R 305
2

122185 ✓

18840 ✓
5600

200/24440/122
200
444
400
440
400
40

48 C

130
122
260
260
130
123/15860/128
123
356
246
1100
984
116

129
122
7 Ohms inserted.

Feb. 8, 1881.
Order 144 - R 225
106 V - 23

114175 ✓

2800
18840 R

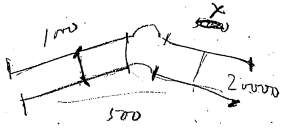
21640

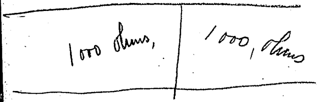
48 C

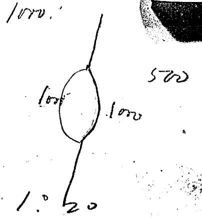
200/21640/108
200
1640
1600
40

130
108
1040
130
115/14040/122
115
254
230
240
230
10

122
108
14 Ohms inserted.


1000
X
20000
500


1000 ohms,
1000, ohms


1000.
500
1000
1000

1 : 20

a9 1 : 20

20 : 1

1000

:988

R : R' :: c' : c

1000 : 20000 :

$$\frac{x-3}{x+2} = \frac{1}{4}$$

$\underline{\quad 4 \quad}$

~~$4x + 8$~~

$4x$ ~~$+12 = x$~~ $+ 2$

3~~x~~

$$\frac{x-3}{x+3} = \frac{1}{4}$$

$4x - 12 = x + 3$

$3x \quad \overline{)15}$

$\underline{5}$

8

123½
3)462
154

$\frac{x}{y}$ $\frac{x-3}{x+3} = \frac{1}{4}$

~~$\frac{(x-3)}{x}$~~ $4x - 12 = x + 3$

$3x = 15$

$x = 5$ $\frac{5}{8}$

~~$\frac{x-3-3}{x}$~~ ~~$x+3 = 8$~~ ~~$\frac{}{4}$~~

$\frac{-3x-6}{x} = 1/4$

~~$\frac{1}{4}x + \frac{3}{x} = 6$~~

$x + 3 =$

$\frac{x-3}{x+3} = 1/4$

$\frac{1}{4}x + \frac{3}{4} = x - 3$

$5x = 15$

$\frac{5}{4}x = \frac{15}{4}$ $x = 3$